What is claimed is:

1. A data structure embodied in a machine readable storage medium controlling a bulk material baler comprising:

an instruction to a moveable guide track section support strut to move from a removed position to a closed guide track loop position when a compression apparatus advances a volume of bulk material to be baled into a compressed position in a baling station;

an instruction to a bale strap feed drive to feed a predetermined length of bale strapping into said guide track loop when said moveable guide track section support strut reaches said closed loop position;

an instruction to a strap cutter to cut a proximal end of said bale strapping length;

an instruction to a strap fastener to fasten a proximal end portion of said length of bale strapping together with a distal end portion of said predetermined length of bale strapping;

an instruction to said moveable guide track section support strut assembly to move to said removed position after said strapping length end portions are fastened together; and

an instruction to said compression apparatus to release from said compressed position after said moveable guide track sections are moved away from said compression apparatus.

2. The data structure of Claim 1 further comprising;

an instruction to a tensioning gripper to grip a distal end of said bale strapping length when said bale strapping length distal end completes transit of said guide track loop;

an instruction to said bale strapping feed drive to reverse drive direction for tensioning said bale strapping length after said tensioning gripper secures said bale strapping length distal end; and

an instruction to said bale strapping feeder drive and to said tensioning gripper to release after said bale strapping end portions are fastened.

3. The data structure of Claim 1 further comprising;

an instruction to at least one tensioning pin to extend when said bale strapping length distal end completes transit of said guide track loop; and

an instruction to said at least one tensioning pin to retract after said bale strapping length end portions are fastened.

4. The data structure of Claim 1 further comprising;

an instruction to at least one fastener tie cylinder to reverse for return to a ready position after said bale strapping length end portions are fastened together.

5. The data structure of Claim 1 further comprising;

an instruction to an ejector apparatus to eject the bale from said baling station after said moveable guide track section support strut assembly reaches an eject position and after said compression apparatus decompresses;

6. The data structure of Claim 1 further comprising;

an instruction to said compression apparatus to begin a next cycle after said bound bale has moved away from said compression apparatus and said moveable guide track.

7. The data structure of Claim 1 further comprising;

an instruction to a moveable guide track section support strut to move from a ready position to a closed guide track loop position when a compression apparatus advances a volume of bulk material to be baled into a compressed position in the baling station;

an instruction to said moveable guide track section support strut assembly to move to an eject position after said bale strapping length end portions are fastened together and released; and

an instruction to said moveable guide track section strut assembly to return from eject position to ready position after an ejection apparatus ejects said bound bale from said baling station.

8. The data structure of Claim 1 wherein said data structure stores data recording the position status of said moveable guide track section support strut and wherein said data structure receives said position data from at least one proximity switch for signaling said closed loop position, at least one proximity switch for signaling said ready position and at least one proximity switch for signaling said eject position, said switches being in communication with said data structure.

9. The data structure of Claim 1 wherein said data structure stores data recording the position status of said compression apparatus and receives said position data from a

limit switch on said compression apparatus that signals said data structure when said compression apparatus is at a compressed position and a limit switch on said compression apparatus that signals said data structure when said compression apparatus is at a clear position.

10. The data structure of Claim 1 wherein said data structure stores data recording the position status of said bale strapping length distal end, said data structure receiving said position data from a limit switch placed about at the end of said closed guide track loop, said limit switch signaling to said data structure when said distal end of bale strapping length arrives.

11. The data structure of Claim 10 wherein said data structure stores data recording the position status of said bale strapping length distal end, said data structure receiving said position data from a signal from an electro-servo motor engaged to propel said bale strapping, said electro-servo motor having a rotation tracker, said data structure being pre-configured to correlate said rotation tracker data to a registered length of bale strapping.

12. The data structure of Claim 1 wherein said data structure stores data recording the position status of said at least one fastener tie cylinder, said data structure receiving said position data from a signal from an electro-servo motor engaged to propel said at least one fastener tie cylinder said electro-servo motor having a rotation tracker, said data structure being pre-configured to correlate said calibrated rotation tracker data to a registered degree of rotation.

13. The data structure of Claim 1 further comprising an instruction in said data structure to decelerate said progressing bale strapping substantially about 2 to 4 inches proximal to said gripper.

14. The data structure of Claim 1 further comprising an instruction in said data structure to stop said progressing bale strapping at a pre-configured length.

15. The data structure of Claim 1 wherein said data structure stores data recording strap tension, said data structure receiving said strap tension data from a bale strapping feed drive electric servo motor, said bale strapping feed drive electric servo motor having a current monitor signaling attainment of a predetermined amperage corresponding to a torque on said feed drive, said torque corresponding to a pre-configured tension in said bale strapping length.

16. The data structure of Claim 1 wherein said data structure stores data recording strap speed, said data structure receiving said at least two strap position data points from a bale strapping feed drive electric servo motor and having time data in memory, said speed corresponding to a pre-configured speed of bale strapping propulsion.

17. The data structure of Claim 16 wherein said pre-configured speed is between 15 and 76 inches per second.

18. The data structure of Claim 15 wherein said pre-configured tension corresponds to a pre-configured electro servo motor torque between 0 and 93 inches/pound.

19. The data structure of Claim 1 wherein said data structure stores data recording a pre-configured torque, said data structure receiving said torque data from said fastener tie cylinder propulsion electric servo motor, said fastener tie cylinder electric servo motor having a current monitor signaling maintenance of a predetermined amperage range

corresponding to said predetermined torque on said fastener tie cylinder, for tying said end portions of bale strapping length together.

20. The data structure of Claim 1 wherein said data structure signals an alarm and a shutdown at an current monitor amperage level predetermined to correspond to an arrest of progress of the bale strapping length through the bale strapping guide track.

21. The data structure of Claim 1 wherein said data structure signals an automatic alarm and a shut off at a current monitor amperage level predetermined to correspond to an improper tie speed.

22. The data structure of Claim 1 wherein said data structure signals an automatic alarm and a shut off at a current monitor amperage level predetermined to correspond to an improper tie torque.

23. The data structure of Claim 1 wherein said data structure contains an instruction to stop said tie cylinder rotation at a predetermined position, said instruction being sent in response to a fastener electric servo motor signal that said tie cylinder rotation has reached said predetermined position.

24. The data structure of Claim 1 wherein said data structure instruction to fasten said end portions is an instruction to tie said end portions, said strap being a wire, and wherein said data structure instruction constrains current flow to a tying cylinder electric servo motor between a low amperage and a high amperage, for torque control.

25. The data structure of Claim 24 wherein said torque is within a range between 0 and 54 inches per pound.

26. The data structure of Claim 1 wherein said data structure instruction to fasten said end portions is an instruction to tie said end portions, said strap being a wire, and wherein

said data structure instruction constrains a tying cylinder propulsion electric servo motor speed between a low and a high speed.

27. The data structure of Claim 26 wherein said speed is within a range between 180 degrees per second and 540 degrees per second.

28. The data structure of Claim 14 wherein said instruction in said data structure to stop said progressing bale strapping at a pre-configured length is responsive to a set of user programmable settings for user control of said bale strapping length.

29. The data structure of Claim 1 further comprising a data structure alarm and a data structure shutdown signal, said alarm and said shutdown signal being responsive to a set of user programmable settings for control of said predetermined bale strapping tension.

30. The data structure of Claim 22 wherein said instruction in said data structure constraining current flow to said tying cylinder propulsion electric servo motor is responsive to a set of user input parameters for pre-configuring torque.

31. The data structure of Claim 26 wherein said instruction in said data structure constraining a tying cylinder propulsion electric servo motor speed is responsive to a set of user input parameters for pre-configuring speed.

32. The data structure of Claim 23 wherein said instruction in said data structure to stop said tie cylinder rotation at a predetermined position, is responsive to a set of user input rotation parameters for pre-configuring the degree of rotation of at least one fastener tie cylinder.

33. The data structure of Claim 32 wherein said degree of rotation of at least one fastener tie cylinder is within a range between 350 degrees and 380 degrees.

34. The data structure of Claim 5 wherein said ejection apparatus has a proximity switch to signal return to a ready position after ejection of said bound bale of bulk material from said baling station.

35. A data structure embodied in a machine readable storage medium controlling a bulk material baler comprising:

an instruction to a moveable guide track section support strut to move from a ready position to a closed guide track loop position when a compression apparatus advancing a volume of bulk material to a compressed position in a baling station is ready to bale;

an instruction to a bale strapping length feed drive to feed a length of bale strapping into said guide track loop when said moveable guide track section support strut reaches said closed loop position;

an instruction to a tensioning gripper to grip a distal end portion of said bale strapping length upon said bale strapping length distal end portion having completed transit of said guide track loop;

an instruction to at least one tensioning pin to extend upon said bale strapping length distal end having completed transit of said guide track loop;

an instruction to said bale strapping length feed drive to reverse drive direction for tensioning after said tensioning gripper securing said bale strapping length distal end portions;

an instruction to a bale strapping length cutter to cut a proximal end of said bale strapping length;

an instruction to a fastener to fasten together said end portions of said bale strapping length;

an instruction to at least one fastener tie cylinder to reverse for return to a ready position after said bale strapping length end portions are knotted;

an instruction to said at least one tensioning pin to retract after said bale strapping length end portions are knotted;

an instruction to said bale strapping length feeder drive and to said tensioning gripper to release after said bale strapping length end portions are fastened together;

an instruction to said moveable guide track section support strut assembly to move to an eject position after said bale strapping length end portions are fastened together;

an instruction to said compression apparatus to release from said compressed position after the moveable guide track sections move away from said compression apparatus;

an instruction to said moveable guide track section strut assembly to return from eject position to ready position after an ejection apparatus ejects a bound bale from said baling station.

36. A data structure embodied in a machine readable storage medium in combination with a programmable logic controller in bulk material baler control system comprising:

an instruction to a moveable guide track section support strut to move from a ready position to a closed guide track loop position when a compression apparatus and a volume of bulk material reaches a compressed position in a baling station where;

an instruction to a bale strapping length feed drive to feed a length of bale strapping into said guide track loop upon receipt of a signal from said moveable guide track section support strut that it has reached said closed loop position;

an instruction to a tensioning gripper to grip a distal end portion of said bale strapping length upon receipt of a signal from a guide track limit switch that said bale strapping length distal end has completed transit of said guide track loop;

an instruction to at least one tensioning pin to extend upon receipt of a signal from said loop limit switch that said bale strapping length distal end has completed transit of said guide track loop;

an instruction to said bale strapping length drive to reverse drive direction for tensioning after receipt of a signal from said tensioning gripper that said bale strapping length has been gripped;

an instruction to a bale strapping length cutter to cut a proximal end of said bale strapping length after receipt of a signal from said bale strapping feeder drive that said bale strapping has reached a predetermined tension;

an instruction to a fastener to fasten together the end portions of said bale strapping length;

an instruction to at least one fastener tie cylinder to reverse for return to ready position a when said bale strapping end portions are fastened together;

an instruction to said tensioning pins to retract after receipt of a signal from said fastener that said bale strapping length end portions are fastened together;

an instruction to said bale strapping length feeder drive and to said tensioning gripper to release after receipt of signal from said fastener that said bale strapping length end portions are fastened together;

an instruction to said moveable guide track section support strut assembly to move to an eject position after receipt of a signal from said bale strapping length feeder drive and said tensioning gripper that said predetermined tension is released;

an instruction to said compression apparatus to release from said compressed position after receipt of a signal from a proximity switch on said moveable guide track section support strut assembly that the moveable guide track sections are away from of said compression apparatus;

an instruction to an ejector apparatus to eject a bound bale from said baling station after receipt of a signal from said moveable guide track section support strut assembly that it has reached said eject position and after receipt of a signal from said compression apparatus that it is decompressed; and

an instruction to said moveable guide track section strut assembly to return from said eject position to a ready position after receipt of a signal from said ejection apparatus that said bound bale has been ejected from said baling station.

37. The apparatus of claim 1 further comprising a memory for storing a plurality of process variable configurations input by an operator and downloadable for operative application by said programmable logic controller.

38. The apparatus of claim 1 further comprising a memory for storing historical process data.